

Remarks

Claims 1, 2, 4, 5 and 12 have been amended. Claims 3, 8 and 11 have been canceled. Claims 1-2, 4-7, 9 and 12-17 are pending in the application. Reconsideration of the rejections and objections at an early date is requested.

Claims 2 and 11 were objected to based on informalities. Claim 2 has been amended as suggested by the examiner. Claim 11 has been cancelled.

Claims 1, 5 and 11-12 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as its invention. Claims 1, 5 and 12 have been amended in response to this rejection. Claim 11 has been cancelled. It is submitted that the claim amendments herein overcome these rejections.

Claims 1-5 and 8-11 were rejected under 35 U.S.C. 102(b) as being anticipated by Evans, Jr. et al. (U.S. Patent No. 4,341,918). In addition, Claims 1-5 and 8-11 were rejected as being anticipated by Forrest et al. (U.S. Patent No. 6,657,378). Also, claims 1-2 were rejected as being anticipated by Mauk (U.S. Patent No. 5,828,088).

Applicant has amended claim 1 as follows:

- a limitation has been added that the photon absorber consists essentially of silicon, as described on page 5, paragraphs 2 and 3
- a limitation has been added that the working element consists essentially of metal, support for which is found on page 5, paragraph 4
- a limitation has been added that the working element is parallelepiped, as supported at page 3, paragraph 1
- the limitation from cancelled claim 3 that a conductor is defined that has the same

composition as the working element is incorporated into claim 1

- a limitation has been added defining the volume ratio of the photon absorber to the conductor is defined, as supported at page 3, paragraph 2.

None of the cited references disclose a photovoltaic element with all features of claim 1.

The photovoltaic element of the present invention comprises a photon absorber, a working element and a conductor. The working element is parallelepiped and made of metal. The conductor is embedded in the photon absorber. The volume ratio of the photon absorber to the conductor is in the range of 2 to 7 and the conductor has essentially the same composition as the working element.

According to the examiner, all elements can be found in Evans et al. - the photon absorber is the p-type base layer 12, the working element is the p+ field region 14 and the conductor is p+ base 20 in figure 1. It is clear from figure 1 that the volume ratio of element 20 in the photon absorber 12 is not in the range of 2 to 7 compared to element 12. There is also no description to use the same material for the working element and the conductor. Therefore, claim 1 is novel over Evans.

Forest et al. discloses organic photosensitive optoelectronic devices. According to the examiner, the photon absorber includes the layers BCP, PTCBI and CuPc. As can be derived from column 4, last paragraph, the materials are organic materials, whereas according to the amended claim 1, the photon absorber essentially consists of silicon. Therefore, the subject matter of claim 1 is novel over Forrester.

According to the examiner, Mauk discloses a photon absorber made of GaAs. Because the present claim is now limited to photon absorbers consisting essentially of silicon, it is novel over Mauk.

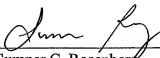
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With regard to the obviousness rejections of various claims under 35 U.S.C.103(a), the examiner relies on Evans Jr. et al. in combination with further references with regard to the additional features of the dependent claims. As none of the additionally cited documents cures the deficiency of Evans Jr. et al. to disclose all features of claim 1, Evans et al. alone or combination with Warner or Lidorenko cannot render obvious the subject matter of any of the other claims.

Therefore, it is submitted that claim 1, as amended, is not anticipated by the cited prior art and should be allowable. In addition, claims 2, 4-7, 9 and 12-17, which depend from claim 1, either directly or indirectly, should also be allowed. It is respectfully requested that the examiner should pass this application to allowance.

A Credit Card Payment is being submitted via EFS-Web authorizing payment in the amount of \$470.00, representing the fees for a small entity under 37.C.F.R. 1.17(3) in the amount of \$405.00, and 37 C.F.R. § 1.17(a)(1) in the amount of \$65.00; together with a Request for Continued Examination, and Request for Extension of Time. This amount is believed to be correct, however, the Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 14-0629.

Respectfully submitted,



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